Does Folate Supplementation Leads to Better Seizure Control with Antiepileptic Drug Therapy?

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Epilepsy is one of the ancient diseases the humanity has seen. The initial descriptions of epilepsy can be traced to Assyrian texts of 2000 BC [1]. There has been always constant quest to discover a therapy which produces maximum benefit and tolerability with least adverse effects. This has lead to current available therapies such as antiepileptic drugs (AEDs), nerve stimulator, dietary therapies and epilepsy surgery *etc.* Antiepileptic drugs still remain mainstay of therapy as about 70% of the children achieve seizure control with AEDs alone. Most of these AEDs possess significant adverse effects [2]. In this journal issue, lead article by Deopa et al. discusses about intriguing idea of antiepileptic medications causing secondary cerebral folate deficiency [3] leading to increased seizures induced by antiepileptic medications themselves. Induction of microsomal liver enzymes has been postulated as an etiology for folate depletion in patients receiving long term AEDs [4]. As authors rightly pointed out it is hypothetically related to elevated homocysteine level which acts as a potent agonist of the NMDA-type glutamate receptor linked to epileptogenesis [5]. In the second part of the study, authors investigated the therapeutic aspect of folic acid in controlling the seizure as an adjunctive therapy along with AEDs in those patients. The authors have done outstanding work with the available resources to demonstrate such benefit with improvement in blood and RBC folate levels. The future studies should focus on analyzing serum homocysteine level in epileptic patients who are folate deficient. Further assessment to check existence of any correlation with reduction in homocysteine level and increase in CSF folate level to overall improvement in seizure

control is required to prove such hypothesis. In the interventional part it would be bemusing to see if treatment with folinic acid provides any superior result over folic acid. The idea of using folinic acid stems from the fact that it is the standard therapy for primary cerebral folate deficiency [6]. Overall, due to demonstrated benefits and least side effects at this prescribed dose of folic acid supplementation, it would be prudent to advocate this as an adjunctive therapy.

Compliance with Ethical Standards

Conflict of Interest None.

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